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LECTURES
ON
PHRENOLOGY,
BY
DR. SPURZHEIM.

LECTURE 12.

LADIES AND GENTLEMEN,

We come this evening to organs less difficult than those we considered the last time, and you will remember that our mode of proceeding with the intellectual powers was this: first, we admit those powers which make men and animals acquainted with external objects and their physical qualities; that above these are placed the powers of considering the size, the configuration, the colour, and particularities. First, then, we become acquainted with the *individual objects*, then we learn their *situations*, their *qualities*, their *relative situations*.

Number.

Men acquire a knowledge of the number of objects, and we come now to consider this kind of knowledge. Children, from infancy, are particularly attentive not only to the existence of objects and their qualities, but to every thing which relates to them, and any one accustomed to children must have observed, that in a very short time they make a great number of observations, so that many persons are astonished at the progress their children make; if they would go on so for twenty years they would all become great geniuses. Among adult persons there are some who are quite indifferent to occurrences, and take no sort of notice of any thing around them. Others know every thing which happens; not a thing can take place but they must know it; a noise in the street—what is it? They wish to know every thing; a stone falls and they know it. Other persons, again, are content to hear what happens and take no active part about it. Some have the external senses so quick that they perceive every thing, and if you pay attention to their organization you will find that the middle and lower part of the forehead comes out (26). It is observed to be very flat in new-born children, and to remain so until about two months after birth, and then it begins to expand, and in some children there is a projection quite like a walnut in the middle of the forehead, and you may depend upon it that such children always show a desire to have stories told them, and to become acquainted with things around them. There are adult persons who wish to know all the occurrences of the day, and who like to tell stories; this desire appears very common in mankind, and the part is much developed, generally speaking. Reason with people, and tell them stories, and see to which they will remain most attentive. Those who take an interest in observing society must have noticed, that there are persons who make themselves agreeable companions; they know something of every science, and they have a general knowledge of every thing; they know something of chemistry, of botany, of painting, of music, of architecture, and so on, and you will find that such persons are full here. However, this peculiar development I speak of is most easily observed in children; it comes quite out in the middle of the forehead, and such are always fond of hearing stories; and if you find individuals depressed in that part you may be quite sure that they take no interest in what is going on around them.

There are persons who recollect easily facts; in reading history, a greater number of persons will recol-

lect the facts, the events, than the dates or names; they may recollect the dates for a little time but they soon go; and they may be able to repeat the names for a short time, but they are also forgotten, yet the facts remain, and that power belongs to this part. If you are reasoning with individuals and you find this part most developed, begin always to state facts, and then you enter into their mind. Those among medical men who publish cases, and never reason on them, have this power I speak of, although this power is the basis of reasoning, yet in itself it is confined to the knowledge of facts. By far the greater number of individuals have this part of the forehead developed. There are some nations in whom it is more developed than in others; it is more prominent among the French than the Germans; the French think that it is an essential feeling which exercises the external senses, since the wish to become acquainted with external objects, and since the two powers of individuality and eventuality exercise the external senses, and the nations who have these two powers most active have the external senses more active. You must repeat things to some persons two or three times before they hear so as to understand, and others hear at once. There are many children and adults fond of acquiring a knowledge of facts. Now you will find that some persons like to learn the precise period, and dates, and names connected with any occurrence; if they tell you stories they are not satisfied with telling you the facts, but they will say, that such a thing happened in such a year, such a month, and even on such a day, and unless they can tell you all these they will not feel satisfied; others say, never mind them; they will tell you the facts and forget the periods. We see, therefore, great differences in the memory, because certain powers are more active than others, hence there are several species of memory, and this has been observed in former times, and especially by the priests; they found that there were persons more attentive to dates—numbers; others to events; and they divided the memory into several species, and they called that memory which retained dates and numbers a *verbal memory*. But we can have no organ for memory. In painting and music there must be various other powers brought into action, for if a man had no more ideas than those of mixing colours he would never excel as an historical painter. Individual powers are necessary to certain talents, but the whole faculty commonly ascribed to one talent generally depends on a combination of powers. Hence to become a good musician, melody and calculation are necessary.

I come to another organ, to one of the first discovered, and which to this day presents great difficulties and is subject to many blunders; it is situated behind the eye. Dr. GALL had often observed that some children had a great facility of learning by heart; if they looked over a thing once or twice they knew it, and that other children were obliged to labour a great deal to be able to repeat any thing, and it is a great mistake to make children waste their time in making them learn by heart. There are some children and adults who have no great talents, and even almost idiots, who have good verbal memories. It is a great error in education to think that one talent gives another. Again, those who are to teach morality must calculate, and those who treat disease must calculate. There are some professions, certainly, in which calculation is necessary, and there are others in which it is quite superfluous. So there are others who have a good verbal memory but no calculation, and there is a great number of such persons. Here is the cast of Jedidiah Maxton, a man educated in the country, and being brought to London went to the play to see Garrick; he recollected the syllables, but the ideas of Shakspeare were not retained by him. We are too much addicted, from infancy, to learn words and attach no ideas to them; we are taught to repeat like machines. There are children who have good verbal memories, and Dr. GALL observed that such children have very prominent eyes; however, we see persons who possess good verbal memories sometimes in whom the eyes are not prominent.

Time.

I have before spoken of a power which disposes a person to take notice

of events, and I have called it eventuality, and there is, it appears to me, likewise a power for noticing the *duration* or *succession* of events, and I believe that this is done by a peculiar power of the mind, and I call it *Time*; it is a power essential to music. Can we admit an internal power of the mind as necessary to music; or shall we suppose that the talent is acquired by the accuracy of the external sense? Every one knows that there is a difference between hearing and having a musical ear; a person may hear a sound very well and yet have no musical ear. There are persons who do not hear the harmony of tones, and there are others, although almost deaf, yet if they hear two tones brought together that do not accord, they say there is no harmony in this, there is discord. This power exists, in a certain degree, in animals; there are singing birds and birds which cannot sing. Now if the power which disposes the birds to sing depend upon hearing alone, as some have said, try an experiment, take the egg of a singing bird, and let it be hatched by another bird which does not sing, and you will find that the young bird will sing; and you will find, moreover, that the males will sing and that the females will not. Hence there must be an internal impulse, an instinct. In men there is a similar power; the power of judging of the harmony of tones is not always received by hearing, but some men begin to compose from within; great masters of musical composition have been both blind and deaf, and yet go on with their composition; they cannot hear any instrument, but they commit their thoughts to paper; they read them, they calculate on them, and they go on with their composition. This power of the mind depends upon a cerebral part, and you will find that all great masters of composition, all great composers, are full hereabout, above calculation. You may see this power developed sometimes in an extraordinary way; the infant LYDIA, as she is called, when only six months old, showed a great talent for music; she was displeased by certain tones and amused by others; there must be something in the interior to do this. We have several examples of the early manifestation of this power. When HANDEL was quite a child his parents took away the instruments from him, and when they were gone to bed he would get up and amuse himself by playing on them. Whenever you find that talent active in children you will find the part I have mentioned developed. I have observed a great many persons, and I have found that if this part comes out more than the external angle of the eye, just above calculation, that such persons have the power of judging and understanding music.

This is the cast of JOSEPH HAYDN; you see that this organ is well developed, and so is wit; he had wit also. There are countries in which this organ is found much larger than in others. Now if you take the common people of this country and the common people of Germany and compare them, you will find the organ larger in the Germans. If you know establishments where children are taken in on account of their musical talent, and compare these children with others, you will find this organ much broader in the former. Several blunders may be made with this power, but you must see whether it comes out beyond the external angle, and then you may be sure of it.

Tune.

Is melody a fundamental power, or is it a compound operation of the mind? To constitute a good musician a combination of powers is necessary; first it is necessary to possess melody, then time or the duration of melody. There are individuals who like music and have a good musical ear; they feel the harmony and melody, and can immediately detect any discord in the tones, even when a number of instruments are playing at the same time; and melody is the combination of a great variety of tones agreeably, whilst harmony means only an agreeable succession of tones, or simple sounds. Now you will find some who have a good musical ear, and feel the melody or harmony, but yet have great difficulty to play in concert; others, again, play in time but are not harmonious in what they bring out. We see, among musicians, some celebrated for one of these qualities and others for the other. Some composers produce very

harmonious music, but there is no depth in it, it is quite superficial, whilst others compose with great feeling, combining harmony with sound and science. This organ is placed here, beneath the posterior convolutions of the anterior lobes at the base of the brain, and this convolution passes transversely from one side to the other, whilst the other convolutions of the anterior lobes are placed longitudinally; it is the seat of melody or *tune*.

Artificial Language.

There are some who have the lower lid very protruded; the eye appears to protrude the lower lid, and such individuals are very fond of languages. If you look into their libraries you will find a great number of grammars and dictionaries, and they can remember a great number of words and languages, and they seize the spirit of a language; they are good philologians. In the artificial languages, we have a great many words, but the words are arranged according to certain laws, as there are certain rules which regulate the other arts. In the composition of colours, we find that there are certain laws which operate, and all things produced by nature are subject to laws. Colours do not depend entirely on our will, there are certain laws by which they are influenced, and to which we must submit. So we find in the arrangement of signs called language, there are generalities in all languages, as in the sciences. It is very important in studying the mind, to see first what language is. I find a great deal of confusion among men who reflect on the human mind as to this matter, and I wish to call your attention to a few ideas.

First let us see whether the powers can act, whether the individual feelings I have spoken of here about, (on the upper and back part of the head,) as the love of approbation, self-esteem, caution, love of offspring in man, can manifest themselves without any artificial signs. When I speak of a power of language, I mean by *language* in a general way, *signs by which the activity of the mind is communicated to other beings*. It is not always understood exactly to imply this; but we must try to separate the signs from the operation of the other powers. The individual powers I have spoken of may become active without having any signs by which to communicate their activity to others. In speaking of *signs*, I shall divide them into *two classes*, such as are *natural*, and such as are *artificial*. The next time I shall explain myself more fully as to natural language, but I mean by it this, as soon as the powers become active, external signs are employed by which to indicate that activity to other beings possessed of the same powers. But besides this natural language, there are other artificial signs employed to express the activity of the powers. The powers, therefore, in my opinion, may be active, without having artificial signs to indicate their activity. Many have written on the influence of the signs upon the ideas, but I think the ideas may produce the signs, and that there are natural signs by which the ideas may be communicated; but as man has also an intellectual sort of activity, he is not satisfied merely with natural signs.

The five senses exist in animals and in man, and the animals have things which are agreeable and disagreeable to them, as well as man; the same smells do not please all, nor the same touch. If you give them different things to eat, they will soon find out such as are agreeable; they will make a choice. So in their sensations they choose situations more agreeable to themselves, and a great many of them prefer heat to cold. We find the same operations of the senses in man, but as he has a superior talent, and has intellectual powers, so he can gratify his senses in an artificial way; he prepares his aliments, whereas animals do not. Animals have a natural language, and it is really astonishing to hear some persons ask whether animals have a language. Animals place sentinels, and if they had not signs, how could they understand the approach of an enemy. Look at the dogs much attached to their masters, and they show their feelings plain enough by external signs. Animals have language, in the application I have given of the term; they indicate their feelings by signs, and they understand this expression of feeling shown either against or toward each other. If they place some as sentinels, the sentinels must have signs, and

the signs of the sentinels can be of no use unless the others understood them, but I repeat that man, in addition to this, has intellectual powers, and he invents also artificial signs. But if beings are together being deaf, can they insure an artificial language by adapting artificial configurations to the eye? Certainly they can, and we know what has been done for these unfortunate people in that way. Then there is the case of James Mitchell before mentioned to you; he was deprived of sight and hearing; was it possible to have given him an artificial language? Yet he expressed his anger, and several other feelings. He expressed his assent or objection to any thing by a nod and a shake of the head. I believe he might have been instructed by artificial signs, and it is a pity that it was not done. We see, therefore, that there are natural signs, and that there are arbitrary signs, and we find that there are some individuals who have a great facility in tracing them; the organ is placed very peculiarly, and I call it the organ of artificial language. The position seems very curious; it is placed transversely to all the powers we know.

There are some individuals who have the greatest difficulty in learning names. The mind invents names according to the activity of the powers; thus individuality affords the substantives, names which express the mere existence of objects; then the powers by which we judge of the qualities of objects afford the adjectives. The powers which make us acquainted with the mutual relations and actions of beings supply the verbs; so that our arbitrary signs are the result of the activity of the intellectual powers. If, therefore, we have new ideas, why may we not invent new signs to express them. I come now to ideas of a superior order, and such as are of the highest importance to mankind.

[*Comparison.*

By far the greater number of persons are satisfied with knowledge of the things around them. Tell them of enchantments, tell them marvellous stories, and they are amused; they do not like to go further, and it is not necessary for them. But others have a tendency in their minds constantly to compare; they are never satisfied with individual knowledge, they bring it up to a point and compare their knowledge; they compare the forms and localities of beings. *Comparison* is a high operation of the mind, and I speak of the power as *reflective* also, and this is what is commonly called reason. The number of those appears to me small who reach to comparison only. To compare is a great faculty; to point out what is analogous, and what is different, and what is commonly called *discrimination* of the mind, is this power. Speak with persons, and you will see that some have a great faculty in discriminating and comparing their ideas, and others put all together, and have great confusion of ideas. If you look for the organization, look in the middle line of the forehead at the upper part, just above eventuality. Those who quote examples, and compare what are analogous and what are not; and if, when reasoning, they say, this is just like such a case, and then quote the case, a manner very effective in speaking to common people, you may be sure that this organ is well developed. If you know a preacher whose discourses take great effect upon common minds, you will see something going on here; they have the power of bringing down and comparing with common events things which are even supernatural. It is impossible to comprehend what is preternatural; it must be elucidated by what is natural; and have we not seen that the Gospel has been propagated from the earliest times by this mode of reasoning. If, on the other hand, people hear a preacher, perhaps a man of talent, and they will be ready to say, Oh, what a great man he is, what great volubility of language he has, and so on. Ask them what he has been saying, what he has been preaching about, and they cannot tell. (A laugh.) That is the result of his not bringing down to the capacities of his hearers by examples what he has wished to inforce. It is quite certain, that if you see persons in common conversation who are apt at quoting examples, and analogous cases, they are broad here.

Causality.

Comparison, however, is not the highest power, there is one still more important in its effect, it is *causality*. We see, sometimes from infancy, children who ask, Why this, and why that? There are others who never get up so high as to that *why*, or, as the ancient poet has said, "Of all things to trace up the cause." Metaphysicians have exhibited this power, and Dr. GALL called it "the power of metaphysics," but they go too far, they want to know too many causes; the *first* cause of all things must exist, but we cannot arrive at it. We know the *secondary causes;* we see them, we know them in the succession of events, and in relation to them we may observe and learn many things displayed by nature. We cannot invent or create causes, but we can observe circumstances under which events take place, and then we call these circumstances, causes. We cannot do more than this, and if the mind could be convinced of this, and be contented with observing the succession of events, and the regularity with which they occur, we might be able to do many things. This power is important in every situation, not only to metaphysicians, who wish to dip into the first cause, but to every individual. Those who wish to account for events, and ask what is the cause of every thing, have the parts adjoining comparison broad; comparison is in the middle, and causality at the side of it, and you will see the organ large in all those persons who like to dip deep into their profession, whatever it may be, and make themselves acquainted with its principles. If you know an historian who writes the facts merely, without attending to the order of events, and makes one precede another when it ought to follow, such a man will be defective in this power; but if you know an historian who, in a philosophical spirit, gives a well arranged concatenation of events, and reasons on them, you may be sure that he has this power. If you find among the poets men who dwell much on principles, this organ is full in them. Take Locke or any man who has, as far as the knowledge of the times has gone, reduced the operations of the mind to principles, such as Milton, Harvey, Bacon, Watts, and Franklin, and you will find in all of them the organ is large. It is infinitely more developed in this country than in any other.

There are other operations of the mind which tend to speculation, and if the upper part of the forehead be developed without the lower, then the reasoning will be speculative, because it is not founded on fact. This is the case commonly in Germany, the upper part is larger than the lower, so that there is a great necessity for bringing all the powers into combination. If you see in common life a servant who has this part large, he will execute your commission, but you must tell him exactly what he must do. There are some persons who will reason very well, as long as they keep on subjects with which they are quite familiar, but take them into other subjects, and they are quite at a loss. But to have common principles, common sense is a great thing, although it is really very scarce. (A laugh.) Look at persons who have sound judgments, who can contrive and separate the various opinions in moral philosophy, and you will find them broad in this part. I know individuals who have great tact in phrenology, but they do not understand the principles, and I know others, it is true, who are acquainted with the principles, but who cannot arrive at the practical tact.

I have now finished the individual organs; the next time I shall consider the signs which show us the activity of the powers. Having the powers, I wish to know how the activity of the powers is to be measured, and I said from the beginning, that we ought not to speak of the activity, until the powers themselves had been considered; that the alphabet of the science was first to be learnt. The activity of the powers is marked by certain external signs, and these I have called the natural language. Since I am convinced that every thing given by the Creator is submitted to principles, that is enough for me to allow. What nature has done, what the Creator has dictated, is done according to laws. Every thing in nature is done according to principles, and we must see if the natural signs cannot be reduced to principles.

REVIEW.

Dr. Prout, on *Diabetes, Calculus, &c.* (Concluded from Vol. vii. p. 401.)

Chapter IV.—*Description of Urinary Gravel and Calculi, with a summary account of their Chemical Composition, &c.*

"Mechanical deposits from the urine," says Dr. Prout, "though composed of the same general ingredients, may, in a pathological point of view, be conveniently divided into three classes":—

1. *Pulverulent, or amorphous sediments.*

2. *Crystallized sediments, or gravel.*

3. *Solid concretions, or calculi formed by the aggregation of these sediments.*

1. *Pulverulent, or amorphous sediments* generally exist in a state of solution in the urine before it is discharged, and afterwards till it begins to cool, when they are deposited in the state of a fine powder, the particles of which do not appear to be crystallized. Their general appearance varies much, though their colour is, for the most part, red, diluted with more or less of brown or yellow; their composition is as various as their colours. Generally speaking, however, they may be said to consist of two species of neutral saline compounds, viz. the lithates of ammonia, soda, and lime, tinged more or less with the colouring principle of the urine, and with the purpurates of the same bases, and constituting what are usually denominated *lateritious* and *pink* sediments; and secondly, the earthy phosphates, viz. the phosphate of lime and the triple phosphate of magnesia and ammonia, constituting for the most part sediments nearly white. These two species of sediments very frequently occur mixed together, though the lithates generally prevail; and it is to this circumstance, and to the latter tendency that the salts of which they are composed have to assume the crystallized form, that their heterogeneous and amorphous nature is to be referred.

2. *Crystallized Sediments, or Gravel.* These are commonly voided in the form of minute angular grains, or crystals, mechanically diffused through the urine, and which almost immediately subside, although in extreme cases an additional quantity of crystals is usually deposited as the urine cools. In slighter cases, few, or perhaps no, crystals are voided with the urine; but they are deposited abundantly upon its surface and upon the sides of the vessel in which it has stood for some hours. These crystals are composed of—1. Lithic acid, nearly pure; 2. The triple phosphate of magnesia and ammonia; and 3. Oxalate of lime. The crystals of lithic acid, which are by far the most frequent, are always more or less of a red colour. Those composed of the triple phosphate of magnesia and ammonia, are always white; while those composed of the oxalate of lime, which are extremely rare, are of a dark blackish green colour. These different varieties of crystallized deposits are *never voided together* in the same urine, though the two former not unfrequently occur mixed with amorphous

sediments, and even with one another, after the urine has stood some time.

3. *Solid Concretions, or Urinary Calculi.*—The before-mentioned sediments concreting together into solid masses form what are called urinary calculi, of which thirteen species are already known, viz.:—

1. *The lithic acid calculus.*
2. *The lithate of ammonia calculus.*
3. *The oxalate of lime, or mulberry calculus.*
4. *The cystic oxide calculus.*
5. *The bone earth, or phosphate of lime calculus?*
6. *The triple phosphate of magnesia and ammonia calculus.*
7. *The calculus composed of a mixture of the phosphate of lime and triple phosphate of magnesia and ammonia, or the fusible calculus.*
8. *The alternating calculus.*
9. *The mixed calculus.*
10. *The carbonate of lime calculus.*
11. *The xanthic oxide calculus.*
12. *The fibrinous calculus.*
13. *The prostate calculus.*

1. *The lithic acid calculus* is generally of a brownish red, or fawn colour, but occasionally of a colour approaching that of mahogany; its surface is commonly smooth, but occasionally finely tuberculated, and, upon being cut through, it is usually found to consist of concentric laminæ.

Chemical characters.—Their specific gravity varies from 1.3 to 1.8. Before the blow-pipe this calculus blackens and emits a smoke, having a peculiar odour; it dissolves in caustic potass, and may be again precipitated by an acid in the form of a white granular powder. If to a small particle a drop of nitric acid be added, and heat applied, the lithic acid is dissolved, and if the solution be evaporated to dryness, the residue assumes a beautiful pink, or carmine colour.

2. *The lithate of ammonia calculus* is generally of a clay colour; its surface is sometimes smooth, sometimes tuberculated; it is composed of concentric layers, and its fracture resembles that of compact lime-stone. This calculus seems to be principally confined to children under puberty, and hence is generally of small size and rather uncommon.

Chemical characters.—It is much more soluble in water than the lithic acid calculus, and always exhales a strong smell of ammonia on being treated with caustic potass; before the blow-pipe, it usually decrepitates strongly. The lithate of ammonia is readily soluble in the alkaline subcarbonates, which pure lithic acid is not; and in this case the fixed alkali seems to take the place of the ammonia, while the ammonia combines with the carbonic acid of the subcarbonate.

3. *The oxalate of lime, or mulberry calculus*, is generally of a very dark-brown colour, approaching to black; its surface is very rough and tuberculated (hence the epithet *mulberry*). It is usually hard, and when cut through exhibits an imperfectly laminated texture. This species of calculus seldom surpasses the middle size, and is rather common. There is a variety of it remarkably smooth and pale coloured; these are always of small size, and, from their colour and general appearance, have been termed the *hemp-seed* calculus.

Chemical characters.—Before the blow-pipe this species of calculus expands into a kind of white efflorescence, which, when moistened and brought into contact with turmeric

paper, stains it red. This white alkaline substance is the caustic lime deprived of its oxalic acid.

4. *The cystic oxide calculus* is of a yellowish white colour, and its surface, which is commonly smooth, exhibits a kind of crystallized appearance. When broken, it is found not to exist of distinct laminæ, but appears as one mass, confusedly crystallized throughout its substance. The fracture exhibits a peculiar glistening lustre, like that of a body having a high refractive density, and when in small fragments it is semi-transparent. This calculus is small, or not surpassing the medium size, and is very rare.

Chemical characters.—It yields a very peculiar and characteristic odour when exposed to the flame of a blow-pipe; it is very soluble both in acids and alkalies.

5. *The bone earth, or phosphate of lime calculus*, is generally of a pale brown colour, and its surface is smooth, like porcelain, so as to appear highly polished. When sawn through it is found very regularly laminated, and the laminæ readily separate from one another. These laminæ are striated in a direction perpendicular to the surface, as from an assemblage of fibres. This calculus is small and extremely rare.

Chemical characters.—This does not fuse by the heat of the blow-pipe; it is readily soluble in dilute acids, and precipitable in the form of a white powder, without decomposition.

6. *The triple phosphate of ammonia and magnesia calculus* is always nearly white; its surface commonly uneven, and covered with minute shining crystals; its texture is not laminated, and it is easily broken and reduced to powder. Sometimes, though rarely, it is hard and compact, and when broken exhibits a crystallized texture, and is more or less transparent. Calculi composed entirely of the triple phosphate of magnesia and ammonia are rare, but specimens in which this salt constitutes the predominant ingredient are by no means uncommon.

Chemical characters.—Before the heat of the blow-pipe this calculus gives off the odour of ammonia, and at length melts with difficulty; it also gives off ammonia when treated with caustic potass; it is much more soluble than the preceding species in dilute acids, from which it is again readily precipitated by ammonia in its original crystallized form.

7. *The calculus composed of a mixture of the phosphate of lime, and triple phosphate of magnesia and ammonia, or the fusible calculus*, is commonly whiter and more fusible than any other species, resembling sometimes a mass of chalk, and leaving a white dust on the fingers. This species is generally not laminated; occasionally, however, it separates readily into laminæ, the interstices of which are often studded with sparkling crystals of the triple phosphate. The variety of this species which is not laminated often acquires a very large size, and assumes the form of a spongy, friable, whitish mass, evidently moulded to the contracted cavity of the bladder in which it has been formed. This species of calculi occurs very frequently.

Chemical characters.—It may be readily distinguished by the ease with which it melts before the blow-pipe; it also dissolves readily in acids, and particularly in the dilute muriatic acid; and if to the solution oxalate of ammonia be added, the lime is precipitated alone, and the magnesia may be afterwards separated by the addition of pure ammonia.

8. *The alternating calculus*, as the name imports, may consist of different layers of any of the preceding species. Most commonly it is composed of a lithic acid, or mulberry nucleus, and an external crust of the fusible calculus. This species of calculus often acquires a very large size, and is very common. The *chemical characters* must of course vary with the composition, and the nature of the different laminæ may be ascertained by the tests already described.

9. *Mixed Calculi* consist of an intimate mixture of any two or more of the preceding species; but generally of a mixture of the lithate of ammonia and the phospates. Their colour varies with their composition. They are, for the most part, not laminated, and possess considerable hardness. They are seldom of large size, and are fortunately very rare. The *chemical characters* of mixed calculi, will depend upon their composition.

10. *Carbonate of Lime Calculus.*—Dr. PROUT has seen some small calculi composed almost entirely of this salt. They were perfectly white and very friable. Mr. SMITH has described others which closely resembled in appearance the mulberry calculus.* This species of calculus is very uncommon. They are readily detected by their dissolving with effervescence in acids, and by other well known properties.

To these ten species, Dr. MARCET has added two others, viz.

11. *The Xanthic Oxide Calculus*, of which only one specimen seems as yet to have been observed; and

12. *The Fibrinous Calculus*, apparently composed of the fibrin of the blood. Both these calculi are small. There is another species of calculus, which, though not of urinary origin, is very liable to be mistaken for such, from the situation in which it is formed, namely,

13. *The Prostate Calculus.*—Of this there seems to be two varieties. The first variety is usually formed in the natural cavities of the gland before it becomes much disorganized. They are generally small, and more or less rounded in shape, and of a yellowish brown colour. The second variety seems to be generally found in abscesses of that gland, where they are sometimes met with in great numbers. These are usually of a much larger size than the first variety, and have a highly polished porcelainous appearance. The composition, however, of both varieties is essentially the same, that is to say, they consist chiefly of phosphate of lime, a substance which appears to be never deposited in an unmixed state by the urine.—pp. 83—91.

For further particulars concerning the chemical composition, &c. of urinary calculi, we must refer to the work itself, and to the various productions of Wollaston, Fourcroy, Vauquelin, Pearson, Henry, Brande,

* Med. Chir. Transactions. Vol. XI. p. 14.

Marcet, and Berzelius.—Dr. PROUT'S descriptions and remarks are clear, scientific, and comprehensive, which the copious extracts we have made from this part of the volume will sufficiently testify.

CHAPTER V. is composed of two parts:

1st. *Data showing the comparative prevalency of the different forms of urinary deposit, and the order of their succession.*

2dly. *Observations founded upon these data, illustrative of the general pathology of calculous affections.*

The substance of the former part is contained in the following table:

Table exhibiting a General View of the preceding data.

General Character.	PARTICULAR SPECIES.	Hunterian Museum, Mr. Brande.	Norwich, Dr. Marcet.	Guy's Hospital, Dr. Marcet.	Manchester, Dr. Henry.	Bristol, Mr. Smith.	Particular Totals.	General Totals.
Lithic acid	Nearly pure	16	66	10	71	....	98	294
	Mixed with a little oxalate of lime	....	....	6		74	6	
	Mixed with a little of the phosphates	45	....	....		....	45	
Mulberry	or oxalate of lime	6	41	22	11	33	113	113
Cystic oxide		....	....	1	2	....	3	3
Phosphates	Nearly pure	12	....	....	4	....	16	202
	Mixed with a small proportion of the lithic acid	66	....	....	18	....	84	
	Phosphate of lime nearly pure	....	4	3	....	1	8	
	Triple phosphate, nearly pure	....	....	2	....	1	3	
	Fusible, or mixed calculi	....	49	24	....	18	91	
Alternating Calculi	Lithic and mulberry	....	15	....	....	....	15	186
	Mulberry and lithic	....	....	....	11	29	40	
	Lithic and phosphates	....	....	....	30	12	51	
	Mulberry and phosphates	....	1	....	16	32	49	
	Lithic, mulberry, & phosphates	....	....	....	....	....	....	
	Mulberry, lithic, & phosphates	5	....	....	7	....	12	
	Fusible and lithic	....	1	....	....	....	1	
	Fusible and mulberry	....	2	....	....	....	2	
	Composition not mentioned	....	....	6	....	10	16	
Mixed, or Compound Calculi	Mixture not mentioned	....	2	7	8	8	25	25
		150	181	87	187	218	....	823

The following is a brief abstract of the conclusions founded upon the data in the table.

1. *Lithic Acid Calculus.*—"The general table indicates that somewhat more than one-third of the whole number belongs to this class; but if," says Dr. PROUT, "we take into consideration the fact universally admitted by all authors upon this subject, that lithic acid constitutes by far the most common nucleus, round which other calculous matter is subsequently deposited, we may, I think, safely assert, that at least *two-thirds* of the whole number of calculi originate from lithic acid, that is to say, if a lithic acid nucleus had not been formed and detained in the bladder, two persons at least out of three who suffer from calculus would never have been troubled with that affection. This is a most important fact, and deserves to be constantly borne in mind."—p. 99.

2. *Oxalate of Lime, or Mulberry Calculi.*—According to the table, the mulberry calculi would appear to constitute rather less than one-seventh of the whole number. The proportion, however, is extremely variable: "Thus of the 150 calculi examined by Mr. BRANDE, only six were composed of oxalate of lime, being one-twenty-fifth of the whole; and even the most pure of these are stated to contain as much as 35 per cent. of other matter: he accordingly remarks that he had seldom met with it. In the Norwich collection, on the contrary, nearly one-fourteenth; and in the collection at Guy's, even somewhat more than this, according to Dr. MARCET, are of the mulberry species. In the Manchester collection, only one-seventeenth consists of oxalate of lime, nearly pure; but if we take into account all those that contain this substance, the proportion will be found to constitute about one-fourth of the whole collection, as in those of the Norwich and Guy's Hospital. In the Bristol collection, rather less than one-sixth of the whole consists of oxalate of lime, nearly pure; but if all be included which contain that salt, five-twelfths, or nearly one-half of the whole, will belong to this class!" p. 102.

3. *Cystic Oxide Calculi.*—"The rarity of this species of calculus is such, that only one in 274 appears from the data before us to be of this description." And Dr. PROUT thinks that "even this estimate is greater than the truth."

4. *Calculi composed of the Phosphates.*—It appears from the table, that about one-fourth of the whole number of calculi consists of the phosphates, and that half the proportion, or about one-eighth, consists of the mixed phosphates. Dr. PROUT thinks these estimates are very incorrect, and has produced many reasons in support of his opinion, for which we must refer to the volume.

5. "*Alternating Calculi,*" says the author, "constitute by far the most interesting and important species of calculi in a pathological point of view, since they present us with a faithful record of the order of succession of the different diatheses, &c."—p. 105. The proportion which one collection of these calculi bears to another is so variable, that nothing generally approaching at all near the truth can be inferred. Dr. PROUT has considered

alternating calculi under eight divisions, and, at the close of a very elaborate inquiry, has arrived at the following important conclusion, viz.

"*That, in urinary calculi, a decided deposition of the mixed phosphates is not followed by other depositions.*"

6. *Compound Calculi.*—"From the aggregate of the preceding data, it appears that about one-thirty-eighth of the whole number only is of this description. But the proportion in the collection of Guy's Hospital is no less than nearly one-twelfth, whilst in the Norwich it is only one-ninetieth; a prodigious difference, for which there is no apparent reason. It is to be regretted also," says Dr. PROUT, "that neither of the authors have informed us of what these compound calculi are composed," and naturally inquires, "Are they composed of the same mixture, or of different ones?" He has nothing of his own experience to offer on this head.

The following observations conclude the chapter:—

"Such is a summary account of the various forms assumed by urinary deposits and of their comparative frequency. The reader, however, will readily perceive that, although so different in their composition and appearance, they may in fact be considered as made up of four elementary substances only, viz.

1. *The lithic acid and its compounds;*
2. *The oxalate of lime;*
3. *The cystic oxide; and,*
4. *The earthy phosphates;*

two or more of which principles are seldom or never found in excess in the urine at the same time. Hence they may be supposed to represent so many distinct diatheses, or conditions of the system requiring to be separately considered; and this accordingly is the principle on which the future arrangement of my subject will be founded. The preceding order has been adopted for the following reasons:—The lithic acid justly claims to be considered in the first place, not only because it constitutes the most frequent constituent of calculi, but is that also which most generally gives origin to the other species, by furnishing a nucleus round which the matters composing them may concrete. Next to the lithic acid, the oxalate of lime species of calculus seems to possess most strongly the characters of an original diathesis, from the frequency with which it gives origin to renal nuclei. The cystic oxide is extremely rare; but it seems to originate most frequently in the kidney, and moreover has the property when present of excluding other diatheses. The phosphates naturally fall to be considered in the last place, from the circumstance that they very rarely constitute entire calculi, but *succeed* to the other diatheses, and are themselves very rarely, if ever, succeeded by any other diathesis."—pp. 113, 114, 115.

"* In a paper by Sir Gilbert Blane, in the second volume of the Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, published in 1811, are the following remarks, which I think it but justice to the author to publish: 'All the substances found in the composition of stone, except the uric acid, of which there is a certain proportion in the most healthy urine, seem to be the creatures of morbid irritation. In almost every instance the concretions of uric acid form the nucleus of stones, which would not be the case if the other substances were produced independently of irritation from the stone itself. The specific effect of this irritation, as the stone advances in size, is to produce, by exciting morbid irritation, the various other compounds which have been enumerated, and there seems to be particular stages of its growth, at which it produces one compound rather than another, as appears by the strata of urinary stones. The several strata may be considered as expressions of this fluctuating action, so as to be registers, as it were, of the duration and succession of these actions, in producing the several species of matter composing stratified stones.'"

CHAPTER VI.—*Of the Lithic Acid Diathesis in general, and on the best means of counteracting it, so as to prevent the formation of Calculus, or its recurrence after an operation.*

Lithic acid, as before stated, is separated from the urine under two distinct forms; first as an amorphous, or uncrystallized sediment, in which it is always in some state of combination; and, secondly, in a crystallized form, and nearly pure.

1. *Of Amorphous Sediments.*—"The amorphous sediments at present under consideration, consist essentially of lithic acid in combination with some base, generally *ammonia*. In healthy urine this compound exists in such a proportion, as to be held in permanent solution at all ordinary temperatures. Sometimes, however, from particular causes affecting the health, the quantity of lithate of ammonia in the urine is liable to be so much increased, as to be rendered incapable of remaining in solution at the ordinary temperature of the atmosphere; hence, as the urine cools, a part of it is deposited, and thus constitutes the sediments in question. Such is an explanation of the phenomenon in its general and most simple form; and the obvious conclusion to be drawn from it is, that the deposition of amorphous sediments is indicative of an *excess* of lithic acid in the urine."—pp. 116, 117.

The exciting causes in a person subject to slight dyspepsia, but in other respects healthy, were of three kinds, as follow:

a. Simple errors in diet; *b*. Unusual or unnatural exercise, either bodily or mental, particularly after eating, and the want of proper exercise at all other times; and, *c*. Debilitating circumstances.

After enumerating the various modifications under which these agents may occasion the deposition of amorphous sediments, Dr. PROUT next speaks of the sediments themselves under three heads; 1. *Yellow* sediments; 2. *Red*, or *lateritious* sediments; 3. *Pink* sediments.

Yellow sediments "consist essentially of the lithate of ammonia, tinged with the colouring principle of the urine, but usually contain more or less of the phosphates, and sometimes a little of the phosphate of soda." Children are obnoxious to this form of sediment, and in them, as well as others, it is frequently the forerunner of gravel or calculus. This class of sediments, however, is common in the urine of healthy persons.

Red, or lateritious sediments "consist essentially of the lithate of ammonia, or lithate of soda, tinged with a large proportion of the colouring principle of the urine, and more or less of the purpurates of ammonia and soda. Sometimes, also, they contain a small proportion of the earthy phosphates." "The presence of this class of sediments," says the author, "may be supposed to denote fever, and generally, I believe, of an active inflammatory nature. There are certain diseases, also, in which this variety of sediment appears to occur in a greater degree, and in a more decided

form than usual; such are gout, rheumatism, hepatic affections, &c.*

Pink sediments, like the other varieties, consist essentially of the lithate of ammonia; but they differ from both these in being almost entirely devoid of the yellow tint, derived from the colouring matter of the urine, and, consequently, in owing their colour chiefly to the purpurate of ammonia. This class of sediments, therefore, appears to indicate the absence of the large proportion of the colouring principle of the urine so constantly present in active inflammatory fever, and to denote the secretion of a greater quantity of nitric acid, and the consequent formation of more of the purpurate of ammonia." The most perfect specimens of this kind of sediment which the author has ever seen were obtained from the urine of dropsical individuals; they occur also occasionally in the urine of the hectic, and of those obviously labouring under certain chronic visceral affections, especially of the liver.—pp. 121—125.

"Such is," continues Dr. PROUT, "an outline of the circumstances which have been observed respecting those amorphous sediments composed principally of the lithic acid. To render them, if possible, still more distinct, I shall briefly recapitulate them: Amorphous sediments owe their colours to two classes of substances, differing from one another; the first of these is, apparently, an ingredient of healthy urine, and helps to impart a yellow colour to that fluid. This ingredient is liable to be very much increased in active inflammatory fevers, though, of course, its presence does not necessarily indicate fever. The second source of colour is the purpurates, a class of substances not existing in healthy urine, but in that only of persons labouring under fever. These two substances naturally give rise to three varieties of sediments: 1. Lithate of ammonia tinged by the colouring matter of the urine only, and not necessarily indicating fever:—2. Tinged by a mixture of an excess of the same ingredient, and more or less of the purpurates, indicating for the most part active inflammatory fever; and, 3. Tinged by the purpurate of ammonia only indicating general fever, of an irritable nature, as *hectic?*

"It may be also remarked, that the above holds only with respect to the *healthy* action of the kidney. When this organ is deranged, as in diabetes, for example, the colouring principle which usually accompanies the lithic acid, as well as the lithic acid itself, are scarcely secreted at all, and, consequently, sediments of the above description cannot take place; in such instances, therefore, fevers can, and do exist, without these appearances. I wish, also, further to remark, that these sediments appear to me to show rather that fever *has existed, and is going off*, than that it *exists at present*. They never appear, I believe, during the first, or cold stage of fever, and properly belong to the last, or sweating stage. In continued fevers, indeed, they sometimes occur almost constantly; but this, I presume, can be explained, upon the supposition, that the sediments, for example, generated by the fever of yesterday, appear in the urine secreted during the remission of to-day; and those generated to-day in the urine of to-morrow, &c. The length of time which the urine is sometimes retained by feverish patients, and the consequent mixture of portions secreted at different times, has thrown a good deal of confusion on this part of the subject, which a simple attention to the above points will, for the most part, set to rights."—pp. 125—127.

* A solution of the oxymuriate of mercury, as is well known, very constantly produces a precipitate in the deep-coloured urine passed during fever or inflammatory action. This precipitate Dr. PROUT has several times analysed, and found it to consist chiefly of the lithate of mercury.

2. *Of Crystallized Sediments, or Gravel.*—Crystallized sediments, or red gravel, consist of lithic acid nearly pure. Lithic acid, as has been before stated, exists in a state of combination in healthy urine; and in such a proportion as to be held in a state of solution at all ordinary temperatures. Sometimes, however, a free acid is generated by the kidneys, which precipitates the lithic acid in the pure crystallized state we see it—a phenomenon easily imitated artificially by adding a few drops of any acid to healthy urine. The precipitation of crystallized lithic acid does not, therefore, necessarily indicate an excess of lithic acid in urine, but the presence only of some free acid in that fluid; though such an excess does for the most part exist in this form of disease. The precipitating acid is most generally the *muriatic*, sometimes the *phosphoric*, or *sulphuric*, and occasionally others. In general, however, it is to be understood, that when the mineral acids are present in excess, these are not the *immediate* cause of the preternatural acidity in the urine, and consequently of the precipitation of the lithic acid. The stronger acids act by decomposing saline compounds, into which destructible acids, such as the lactic acid, &c. enter, and setting them free, hence the *immediate* cause of the deposition of lithic acid gravel is generally a destructible acid of very weak powers, even, perhaps, in some instances the carbonic acid. When the urine contains a free acid, it is commonly more transparent than usual, and of a bright copper colour." pp. 128, 129.

Of the symptoms, causes, and treatment of the diseases in which this diathesis prevails, we shall be extremely brief, since any abridgement will be injustice to the author.

As symptoms, there will be more or less of pain or uneasiness in the region of the kidney, with irritation and sense of heat about the urethra and neck of the bladder; a frequent desire to pass urine, which will be voided in small quantities at a time and with manifest uneasiness; children in general, and particularly the children of dyspeptic and gouty individuals, or who inherit a tendency to urinary diseases, are exceedingly liable to lithic acid deposites in the urine. Between the age of puberty and forty there is, perhaps, generally speaking, less disposition to the formation of lithic acid deposites than at any other period of life. About the age of forty, however, an important change commonly takes place in the constitution, which, for the most part, materially influences these depositions, thus giving origin to the formation of renal calculi. These circumstances are most liable to take place in those individuals who have all their lives been subject to lithic acid deposites; but they not unfrequently occur at this period of life in those who have lived luxuriously and indolently, or who inherit a tendency to gout, though they have never, perhaps, had an open attack of that disease. At the age of sixty or seventy another change takes place in the mode in which the lithic acid is separated from the system; at this period of life, the urinary organs not only begin to parti-

cipate in the general decay of the constitution, but are apt to be deranged in a particular manner from other causes, and more particularly to suffer from the delinquencies of early life. Lastly, organic diseases of the kidneys, or even of the parts contiguous, are exceedingly apt to be accompanied in some habits by the secretion of a large proportion of lithic acid. Thus, nothing is more common than to see those who have suffered from hepatic affections in hot climates, &c. labour under gravel, and in such cases the right kidney is almost always the evident seat of disease.—pp. 130—136.

Amorphous sediments; first variety. (Causes and treatment.)—Of these, errors in diet, from their being most liable to be constant, are of the chief importance; and the error of *quantity* in diet is of infinitely more importance than the error of *quality*. Any stomach may digest a *little* of any thing, but no stomach can digest a *great deal* of any thing. Heavy, unfermented bread, hard-boiled and fat puddings, salted and dried meats, ascescent fruits, and, if the digestive organs be much impaired, soups of every kind, &c. should be carefully abstained from; and, in general, also malt liquors and wines, particularly when of an acescent quality, should be avoided; the cutaneous functions should be attended to by wearing flannel, more especially about the loins.

Second and third varieties.—The former is a symptom of phlogistic fever, and frequently of local inflammatory action, and of course the general treatment must correspond with this state of the system, while the particular treatment will depend upon the organ particularly affected. The same is true of the third variety, although the fever is very different.

Crystallized sediments, or gravel.—This is a most important form of the disease, which, under the most judicious treatment, frequently terminates seriously. Besides the general treatment, consisting of a strict attention to regimen, &c. alkaline remedies are, for the most part, particularly indicated, but "they *must never be trusted to alone*, and to be really useful must be conjoined with other means, and especially with alteratives and purgatives." Hard waters should be particularly avoided. Warm sea bathing is sometimes beneficial, as also a course of Malvern or Cheltenham waters, in conjunction with the alterative and alkaline plan. Hyoscyamus and opium may be employed according to circumstances, and acidity of the stomach, flatulency, and other accidental and frequently concomitant symptoms, must be obviated by the usual means. Active diuretics are sometimes useful, and Dr. Henry has seen a remedy apparently, composed of turpentine and laudanum, bring away *several ounces* of lithic acid in the course of a day or two. Sometimes, instead of turpentine, a combination of muriatic acid and opium will answer very well, particularly when the lithic acid is not disposed to concrete, but comes away in the form of gravel; or the terebinthine remedy may be conjoined with the acid and opium. When, on the contrary, the lithic acid is more

disposed to concrete, the muriatic acid may be omitted and potash substituted, by which means the lithic acid will be held in solution, and this latter Dr. PROUT thinks the safer combination.

The following remarks are too valuable to be omitted:—

"That such remedies are calculated to do good, when judiciously applied, there can be no doubt; but, on the other hand, when indiscriminately exhibited, they are liable to do much harm. Thus, when there is a tendency to active inflammation in the kidney, or when the presence of a renal calculus is suspected too large to pass down the ureter, their exhibition will be likely to increase the affection: nor does their employment seem to be adapted to any other species of deposite, except crystallized lithic acid, nor even perhaps to this form of the disease, when occurring in very young or in very old subjects. Hence as this class of remedies do not appear to exert any beneficial action in any case, in removing the tendency to gravel, but are calculated to answer a particular and temporary purpose only, the moment this has been effected, they should be no longer employed, but the means above recommended, as adapted to prevent a tendency to the affection, be recurred to."

The principles of the treatment to be adopted in *a fit of the gravel* are similar to those already laid down, except that they must be more active. In acute cases, venesection, or cupping from the region of the kidney—active doses of calomel and antimonial powder (or, omitting the latter if nausea be present, and substituting opium or hyoscyamus) should be immediately had recourse to, and *precede* the use of diuretic remedies.—When these have begun to act sensibly upon the system, though perhaps before the purgatives have procured actual stools, the patient may have recourse to warm fomentations about the region of the kidneys, or, what is much better, the warm bath, and commence the use of diuretic purgatives, combined with colchicum. If the attack have been taken in time the above measures will generally succeed.

CHAPTER VII.—*Of the Mulberry, or Oxalate of Lime diathesis.*—Oxalate of lime very rarely, if ever, appears under the form either of an amorphous sediment, or of crystallized gravel. Mr. BRANDE also states, that in this diathesis there is little or no sand or gravel voided, and gives a few particulars of a case where a mulberry calculus was afterwards extracted:—"The patient was a man 62 years of age, and about five years previously had suffered a slight attack of the symptoms of a stone passing from the kidney to the bladder. He had voided no sand, and his urine always appeared clear. During the last two years the symptoms of stone in the bladder attained such violence as to render the operation necessary, and a very perfectly formed mulberry calculus, about the size of a nutmeg with a distinct oxalate of lime nucleus, was removed.* Renal calculi of oxalate of lime are not very uncommon; twelve instances of it have fallen under the observation of the author, and a summary of twelve cases, in which these calculi were voided, is followed by the following general conclusions:

* Journal of the Royal Institution, viii. p. 213.

"1st. That this form of disease occurs in both sexes; that it may exist before puberty, and at all ages between that and 40 or 50, at which time it seems to occur most frequently; but that no case occurs beyond the age of sixty. Hence that it is probably not a disease of old age.

2d. That it is not incompatible with gout, but seems occasionally to be associated with it. I have also seen it connected, as lithic acid frequently is, with a tendency to cutaneous disease.

3d. That this variety of calculous affection occurs in individuals of sound constitutions, and who ordinarily enjoy good health; and that it rarely occurs a second time, except at long intervals, during which the intermediate health is good; which latter facts, it may be proper to observe, are confirmed by other observers, and particularly by Mr. BRANDE and Dr. MARCET.

4th. That the urine is acid, and apparently but slightly deranged in this form of calculus, and remarkably free from all sort of sediment and gravel.*

5th. That as renal calculi of the oxalate of lime often subsequently acquire considerable magnitude in the bladder, it may be inferred, that the formation of this compound is connected with a distinct diathesis, excluding the existence of other diatheses, and that it is not an accidental occurrence, happening in common with many others to the urine.

6th. That from the dissection of calculi, formerly mentioned, it appears that the oxalate of lime diathesis is preceded and followed by the lithic acid diathesis, a circumstance which seems to be peculiar to these two forms of deposite, and which, when taken, in conjunction with the other circumstances already related, appears to show that they are of the same general nature; or, in other words, that the oxalic acid merely takes place as it were of the lithic acid, and by combining with the lime naturally existing in the urine, forms the concretion in question.

7th. That the diathesis being of a similar nature, the principles of treatment adapted for counteracting the original tendency to it must be also similar, that is to say, of an antiphlogistic character; great attention being at the same time paid to the digestive and assimilative functions.

"If," says Dr. PROUT, "there be pain in the region of the kidney, and other symptoms of gravel, without any appearance of sediment, and if the urine be acid and of the yellow tint above alluded to, the stomach deranged, and an inflammatory diathesis, either general or local (i. e. about the urinary organs) be present, and if all these are associated with suppressed gout, or tendency to cutaneous disease, the existence of this form of the disease may be suspected, and means should be immediately taken to counteract it."—p. 161.

Besides the general principles of treatment already alluded to, the author has lately adopted another and very different principle, and, as he thinks, with success, viz. to endeavour to *change the diathesis from that of the oxalate of lime to lithic acid.* The muriatic acid was chosen to effect this purpose, and its use was continued till the lithic acid began to be deposited plentifully on the cooling of the urine. In some instances he thinks the vegetable acids would answer as well as the muriatic, which is apt at first to derange the stomach.

* One circumstance I have remarked in the colour of the urine in this form of disease, which, whether it be characteristic or not I do not at present know. This can be hardly described so as to be understood by another, but may be said to consist in a peculiar *yellow* tint, different from that usually present when the lithic acid prevails, which is usually more inclining to red.

CHAPTER VIII.—*Cystic Oxide Diathesis.*

This diathesis constitutes a form of urinary derangement still less understood than the preceding. Dr. PROUT has only had one opportunity of seeing this affection. From all the circumstances that have been described by Wollaston, Marcet, Henry, Brande and others, he cannot "help forming an unfavourable opinion respecting this rare species of disease. In most cases in which it could be traced, it seemed to be united with diseased kidney, of which it was either the consequence or cause, and in all an inveterate disposition to urinary disease, apparently inherited, was evident." The treatment will depend upon circumstances. Great attention should be paid to the digestive functions; and if the urine be acid, alkalies should be administered; and, on the contrary, if alkaline, the muriatic acid. From the state of the kidney under this diathesis local counter-stimuli appear to be indicated.

CHAPTER IX.—*Of the Phosphatic, or earthy diathesis.*

Transition from the lithic to the phosphatic diathesis.—The first circumstances in the condition of the urine, which generally denote this change, are, the general paleness of its colour, and sometimes its increased quantity. There is also, for the most part, a great tendency in the urine, from the slightest causes, to deposit the lithic amorphous sediments, which are always of a pale colour, and generally contain more or less of the phosphates intermixed with them. Dr. PROUT next enumerates the various changes which such urine undergoes:—After standing for a few hours, it is covered with an iridescent pellicle, consisting principally of the triple phosphate of magnesia and ammonia; in warm weather it becomes putrid, assumes a yellowish opaque appearance, and frequently deposits large spicular crystals of the triple phosphate, as above mentioned. This constitutes the *first* stage of the series of changes in question.

In the *second* stage, the urine commonly assumes a more decidedly pale whey-like colour, and is either alkaline when voided, or very soon becomes so. The lithate of ammonia also diminishes in quantity, or entirely disappears, whilst that of the phosphates, and particularly the triple phosphate of ammonia and magnesia is increased.

Transition from the Oxalate of Lime to the Phosphatic Diathesis.—The first step towards this change appears to consist in a secretion of an excess of lime, and as this proceeds, the proportion of oxalic acid decreases, whilst that of the phosphoric acid increases, until at length phosphate of lime in nearly a pure state is secreted.

Transition of the Cystic Oxyde to the Phosphatic Diathesis.—"In the only instance," says Dr. PROUT, "in which I have had an opportunity of examining the urine in the cystic oxide diathesis, this secretion was inclined to alkalescency, on account of the patient's having been taking alkaline remedies, and in this case the phosphates (or at least the triple phosphate of magnesia and ammonia) were intermixed with the cystic oxide, and the urine had much the appearance

(independently of the peculiar qualities connected with the rare principle in question) that it assumes in the transition stages from the other diatheses to the phosphates."—p. 170—173.

1. *Crystallized Sediments, composed of the Phosphates*, almost invariably consist of the triple phosphate of magnesia and ammonia, and exist in the form of perfectly white shining crystals.

2. *Amorphous Sediments composed of the Phosphates*, consist invariably of a mixture of the phosphate of lime and of the triple phosphate of magnesia and ammonia. The proportion of the salts is variable.

Treatment.—The principles of treatment in both these forms of affection are the same, and differ only in degree. The particular indications of cure seem to be, to diminish the unnatural irritability of the system, and to restore the state of the general health, particularly of the urinary organs, by tonics and other appropriate remedies. In severe cases, especially of the second class, opium must be employed to allay the irritable state of the system, and afterwards it may be conjoined with the mineral acids, cinchona, uva ursi, the different preparations of iron, or other tonics. Plasters to the loins are frequently of service, and the saline purgatives, when the bowels are constipated, are to be preferred. Alkaline remedies must be studiously avoided, and the patients' drinks should be of a soothing demulcent character. In less severe cases, Dr. PROUT is in the habit of giving the hyoscyamus, or opium combined with uva ursi (in the form of extract) or an infusion of the *alchemilla arvensis*, or lady's mantle. The diet should be mild and nutritious, and taken in very moderate quantities at a time. The influence of mental anxiety is very great and useless, and unless the mind can be soothed or set at rest, very little good will be effected. Several valuable cases, as well as the whole of this chapter, can only be duly estimated by a careful perusal.

We cannot enter into an analysis of the last general division of the work, having already far exceeded our usual limits. We may, however, observe, that the present is a great improvement of the former edition, and that it is uniformly useful throughout; each part presenting its proportion to the general stock of erudition contained in the whole. The volume concerns the profession generally, and both practitioner and student will be benefited by its perusal. A well-executed coloured plate, descriptive of the various calculi, is opposed to the title.

ERRATA.

In the review of Dr. PROUT's work, No. 13, Vol. VII. page 392, 2d column, fourth line from top, for 1.0695, *read* 1.0295; and at page 401, 1st column, near the conclusion, for "*its treatment locally and generally consisting of*," read "*its treatment consisting of blood-letting locally and generally*," &c.

FOREIGN DEPARTMENT.

ANALYSIS OF FOREIGN MEDICAL JOURNALS.

ITALIAN JOURNALS.

On the new Italian Doctrine of Contra-stimulus.

A short time since the "Physiological doctrine," as the doctrine of Broussais is termed, was so general in France, and so zealously supported, that it was deemed a medical heresy to doubt, much less to deny its accuracy, a doctrine which maintained that all chronic affections might be *latent*, that is to say, that they might exist without any apparent signs, and that in the greater number of cases in which the seat of a disease could not be ascertained, it was to be assumed to depend upon a sort of smothered inflammation of the stomach and bowels. Further the Broussais doctrine stated, that all fevers, but more particularly fevers called *essential*, were dependent entirely on an inflammation of the stomach, so that, in point of fact, all diseases, whether chronic or acute, inflammatory or otherwise, are to be traced to irritation; that their irritation depends upon an excess of contractility, and that this excess of contractility has its root almost invariably in the abdominal viscera. The pathological absurdities and practical errors to which such sweeping conclusions would lead must be sufficiently apparent, and the French physicians are now just as busily employed in upsetting the doctrine as they were ready to espouse it, and are engaged in harsh and angry disputations, which a little reflection at the onset would have effectually prevented.

In Italy, it appears that a new schism has arisen, which is likely to become just as popular there as the Broussais formerly was in France, and professor Rasori, of Milan, is entitled to whatever value or absurdity may be attached to the doctrine of *contra-stimulus*. Being desirous of supplying our readers with an abstract of the modern medical opinions, we shall, without entering at present into its merits, state the general principles on which the doctrine of contra-stimulus is founded.

1. It is assumed, that life is the result of a continual balance between two antagonist forces, the one, for example, may be named—A, or stimulus, the other B, or contra-stimulus, and that these mutually neutralize and destroy each other.

2. That both these powers are active, and that this activity is equally the property of the stimulants and the contra-stimulants.

3. That every stimulant, and every contra-stimulant, may excite the same vital phenomenon, without our being able to distinguish, after the effect has been once produced, whether it arose from the one kind of cause or the other. Inasmuch as every physiological action may be modified by one or the other of these. Thus delirium may be produced by contra-stimulants, such as hunger, the loss of a large quantity of blood, or any other powerfully depressing cause; or it may arise from plethora, or from inflammation. Opium, which would relieve in the first case, would prove fatal in the second. Thus diarrhœas, convulsions, and even fevers, may be produced sometimes by stimulants, sometimes by depressants. Whatever form the disease may assume, it must be searched to the bottom; it must be ascertained whether it arises from a stimulant or contra-stimulant, and this constitutes what

the Italians call the *diathesis* of stimulus, or contra-stimulus.

4. The stimulant and contra-stimulant remedies may be either strengthening or debilitating, according to the state of the system. A stimulant being given to a patient labouring under a disease produced by a stimulus, would weaken rather than strengthen; a contra-stimulant given in the same circumstances would have a tonic effect.

5. Every medicine, whether stimulant or otherwise, produces two effects, a local and a general one, and the latter is that which appears the most necessary. Thus the tartarized antimony produces nausea, vomiting, colic, and profuse perspiration. Such are the local effects, as the Italians say; but it also acts on the vital powers, on the stimulating powers of the economy; it appears to paralyse the nervous force, diminish the violence of the inflammatory congestions: then there are the general effects, independent of its local action, on which its salutary effect in certain inflammatory affections depends.

6. In every local inflammation, the general state of the economy is compromised; there is an increase of the excitability, and it is on this excitability that the tartar emetic, all the neutral salts, and all the contra-stimulants act; not so much on the vital powers of the diseased part as on the excitability which supports the vital actions generally.

7. In the physiological, or natural state, there is an equilibrium between the stimulation and the contra-stimulation, and the regular exercise of the functions of the body is the result, when either of these powers increases beyond the other, then there is disease.

8. There is in the economy a force of reaction, the effect of which is to oppose the accumulation of stimulus or contra-stimulus. If, for example, a contra-stimulant be given in a very large dose, the system tends to reproduce the stimulus which the remedy has attempted to neutralize; just as the system endeavours to reproduce heat when it is exposed to the cold.

This doctrine appears to us to be a very imperfect attempt to revive that of Brown, but is infinitely inferior to it in many respects. It will have its day; it will amuse and occupy the minds of the Italian, and perhaps French practitioners for a season, and will then be succeeded by some other theory, just as evanescent and visionary. The following case, selected from the clinical ward of Professor Tomassini, may serve to illustrate the practice which the supporters of the contra-stimulous doctrine pursue.

CASE.

Vincent Sarti, of Bologna, aged 23, came into the hospital on the 16th of May. In the beginning of the month he had exposed himself whilst in a profuse perspiration to the cold. The consequence of which was, that he was attacked with pain in the head, followed by shivering and heat, great thirst, and an incapacity of supporting the light. He was bled twice, and had leeches applied behind the ears; he was cupped on the shoulders, and took some demulcent drinks. The complaint continued, and he was bled three times between the 16th and 18th, to relieve the delirium and the intense pain in the head, which, however, went on increasing. On the 18th, the patient was brought into the clinical ward; he had then a pain in his side, with a dry cough, laborious respiration, a pale face, a shrivelled skin, dilation of the nostrils on inspiration; the tongue was chapped and furred, and red at the tip, presenting a striking contrast to the colour of the face; the pulse was soft and slow, the skin hot, without being very dry. Ordered *tartarized antimony eight grains, distilled water three ounces*, a table spoonful to be taken every hour in a glass of the following drink; decoction of pearl barley a quart, nitre a drachm, honey two drachms. Eight leeches to be applied to the side.

In the evening there was an increase of pain in the head, countenance red, thirst increased, pulse vibrating. Bleeding to seven ounces; the barley water was directed to be taken with a less quantity of nitre, but the tartar emetic had caused neither vomiting, nor any evacuation from the bowels.

19th. In the morning he was considerably better, and had slept during the night; the cough, however, was very troublesome, and the back part of the tongue began to have a brown appearance. The pulse was a hundred, and firmer than on the preceding evening. No vomiting, but he has been purged three times; the respiration is more easy, but the pain in the side is severe when he coughs. Ordered the oxymel of squills two ounces, and an oily injection.

℞ *Antim. tartariz.* gr. xij.
Aquæ distil. ʒ vj.

to be taken in barley water as before. The bleeding was again repeated to seven ounces. In the evening the cough was very troublesome; the expectorations serous; the pulse very frequent, and very little improvement in the other symptoms. Ordered some demulcent oily mixture, and ten leeches to be applied to the side.

20th (morning). The cough still dry and very frequent; the pulse quick and vibrating; cessation of the pain in the head. The bowels have been moved twice; the tongue is white, except in the middle, where it is rather brownish, but it is moist. Bleeding to seven ounces. Fourteen grains of tartar emetic in six ounces of distilled water.

21st. The countenance has a much more healthy appearance; the tongue almost natural; the cough just the same. He slept well during the night; pain in the chest slight; pulse rather more frequent than natural, and a little hard. Tartarized antimony 14 grains, in distilled water, six ounces to be taken during the twenty-four hours.

22d and 23d. The same medicine continued.

24th. The cough returned very severely, the pain in the head appeared also. Bled to seven ounces, and the same quantity of tartarized antimony ordered as before.

25th. Very much better; indeed quite convalescent, and the patient went out of the hospital on the 1st of April perfectly cured. He took *one hundred and four grains* of the tartar emetic in *seven days*. This may be considered a fair representation of the extent to which the tartar emetic, or contra-stimulous practice is carried, and if the Italian professors were equally fortunate in the selection of all their cases for its exhibition, we should not have so much to object to their doctrine, but unfortunately it happens with this, as with every other hobby, that the same mode of treatment is adopted in the most opposite cases.

Expulsion of a Fœtus by the Anus, in consequence of a rupture of the Uterus.

On the 15th of August, 1824, a Dr. Harison was called to a woman in labour, of about twenty-two years of age. The orifice of the uterus was not much dilated, and finding that to be the case he went away, and did not return to the patient for some time. During his absence the labour advanced very rapidly; the pains were extremely urgent, and the fœtus was suddenly expelled through the anus, and soon afterwards the placenta followed by the same route. The anus appeared to have been torn in three different directions, and the vagina appeared of its natural size. On a more accurate examination, the neck of the uterus was found to be cartilaginous, and firmly adherent to the surrounding parts. On introducing the finger into the rectum, it passed easily into the cavity of the uterus.

On the 22d of the same month, only seven days after the *accouchement*, the young lady had completely recovered her health. During a former labour, the midwife was obliged to have recourse to the use of the forceps before the neck of the uterus was sufficiently dilated, and the consequence was, that the neck of the uterus was torn in a direction downward, and toward the uterus.—*Repertorio Medico-Chirurgico di Torino*, 1825.

A case of Poisoning by Nux Vomica, with an Analysis of the contents of the Stomach. By ORFILA and BARRUEL.

On the 23d of April, by order of the *Procureur du Roi*, an examination was made of a woman, aged 26, who had died on the 21st, supposed to have poisoned herself. Dr. Drogarts arrived at the moment she was

dying, and observed her labouring under *tetanus* to its greatest extent. On the pillow was a paper, containing six ounces and four grains of a fawn-coloured powder, with a smell like liquorice powder, marked *poison for rats*. It was recognized as being nux vomica, and the quantity taken supposed to have been about an ounce. The spinal plexus of veins were slightly gorged with blood, the sinuses of the dura mater empty; the cavity of the cerebral arachnoid contained a little reddish serum. The vessels of the first were not sensibly injected, but only an infiltration of a little dark blood under the arachnoid of the left lobe, occasioned evidently from the declining posture of the head. The consistence of the cerebral mass was soft, and presented, on being cut, a number of bloody spots. The lateral ventricles contained a small spoonful of reddish serum, without any particularly injected appearance of the pia mater. The cerebral crura, the tuber annulare, and spinal marrow, presented no traces of inflammation. The lobes of the cerebellum were covered by a red and gelatinous exudation; the pia mater very red and injected. The cortical substance exceedingly soft, but did not in other respects appear altered. The cortical structure was very dark, the medullary portion a little vascular. The cavity of the spinal arachnoid was filled with an abundant effusion of serum, limpid, and of a deep red colour. The vessels which pass through the pia mater were little injected. The substance of the spinal marrow presented nothing unnatural. The stomach and intestines were distended with gas; the former viewed externally presented a dark brown appearance on a part of its surface. The *œsophagus* being secured above the cardia, and the great intestine above the rectum, the intestinal canal was lifted out of the abdomen, and carefully emptied into a vessel for the purpose of examination. This liquid, similar to soup, had a greyish appearance, in every respect similar to the powder found in the paper. No particular odour exhaled from it. The mucous membrane of the stomach was blanched in its whole extent, with here and there a little streak of brownish red. In that portion of the *cul de sac* which corresponded to the spot of brown on the exterior, the same venous branches were seen to traverse the mucous membrane, which here presented a very distinctly marked red patch, of the extent of two francs; the intensity diminishing from the centre to the circumference. The mucous membrane of the intestinal canal was blanched. The greyish, pulpy fluid, before mentioned, was confined to the stomach and duodenum only; no traces of it could be detected in the jejunum; the liver was healthy; the spleen, very soft, was easily torn, and contained a great deal of very black fluid blood. On comparing the powder of nux vomica of the shops with that in the paper, no doubt remained of their identity; the only difference was the one having a sweeter smell, like liquorice powder, which the other had not, that in the paper having a nauseating smell when compared to the other.

From the circumstances of this case it was deemed right to see how far the character of this powder agreed with the qualities of such as is met with in commerce, and then describe the method adopted to detect the active principle in the matters contained in the stomach and duodenum.

The nux vomica powder thrown on live coals ignites, if the temperature is very high, if not, it decomposes, exhaling a dense white fume, of a peculiar odour, and leaving carbon as a residuum. Concentrated sulphuric acid blackens it. Nitric acid communicates to it a *deep orange colour*. If boiled in some distilled water for a few hours a yellow liquid is obtained, *opalin*, bitter; the colour is increased much by the addition of ammonia, and becomes reddish yellow by nitric acid. An alcoholic infusion of galls occasions a greyish white precipitate. Nux vomica powder, treated by boiling water, acidulated by sulphuric acid, gives to the filtered liquor a thick and yellowish appearance. The infusion of nut galls gives a yellowish white precipitate; nitric acid reddens it in the course of a few seconds; ammonia darkens it, and throws down a dark floculent precipitate. Many of these experiments were sufficient to show that the powder contained in the paper was nux vomica. The greyish liquid,

found in the stomach and duodenum, mixed with sulphuric acid, largely diluted, furnished, after boiling ten minutes, a liquid which, being filtered, had a yellowish tint, and, when treated by nitric acid, became of a *deep orange yellow*; its taste was acid and bitter. After saturating the excess of acid by carbonate of lime, it was nearly evaporated to dryness. The residue was treated by alcohol at distinct periods, and when blended together imparted a hot, acrid flavour, similar to highly concentrated alcohol, without any sensible bitterness at first, but becoming so subsequently. This liquor, evaporated to a syrupy consistence, had an exceedingly bitter taste, very like *brucine* or *strychnine*, and determined a *deep orange yellow*, with nitric acid; it also formed, by the addition of ammonia, a flocculent precipitate. In about two days the bottom of the vessel was covered by very evident crystals of strychnine.

We have thought proper to institute the above experiments for the purpose of ascertaining the presence of the nux vomica, or rather its principles, in the contents of the stomach, as this kind of research has never before been made, therefore it has been deemed important to give a detailed report.—*Archives Generales, May.*

CASE BOOKS OF ST. GEORGE'S HOSPITAL.

To the Editor of THE LANCET.

MR. EDITOR,—In reading over the letter inserted in your valuable journal of the 2d instant, addressed to you by "A Pupil of St. George's Hospital," I with shame subscribe my testimony to the truths contained in it. Nothing can be so mean and base as the system adopted at this Hospital, of excluding the surgeons' pupils from the only means they possess of acquiring a correct knowledge of the patients' cases. I need scarcely say, that there can be but one reason for the surgeon's resorting to this conduct. Were an accurate account kept of the cases—were the patients punctually visited, and were they successfully treated—would not the surgeon feel proud in giving the pupil every opportunity of becoming minutely acquainted with his practice? But when we hear of arteries being punctured in phlebotomy, legs mortifying, and the mortification not discovered till the bandages have been removed after death—spending a few hours in extracting a stone from above the pubis—cutting down upon aneurisms, when it ought to have been known that it was impracticable to tie the vessel, &c.—these, and such like *inculcations*, sufficiently account for the impropriety of allowing students to become acquainted with the arcana of the Hospital.

To conclude, allow me to observe how different the practice is in the medical schools of other countries; there a distinct history of each case is written out, a report is registered in the presence of the students at every visit, and the books containing the cases are left open, not only for the perusal of the pupil, but he has it in his power to take a copy of such as may be interesting to him. It would be of great importance to the medical public if you could furnish, through the medium of your numerous and intelligent correspondents, any thing like a catalogue raisonée of the *deaths* of those who had undergone surgical operations for the last ten years.

A STUDENT.

July 6th.

To the Editor of THE LANCET.

SIR,—I am sorry to be under the necessity of again troubling you, but I trust you will do me the favour to insert the following lines in answer to the letter of "A Pupil of St. George's Hospital," in your last Number.

Your's, &c.

WELL WISHER.

How the "Pupil" dare to assert that the statement of "Well Wisher" is a slander, to me is not a little surprising. His cerebrum, must be surcharged with very foolish and very idle ideas indeed, to suppose for a moment that if a pupil would be at the trouble of transcribing the history of a patient's case from the Case Book, he should at the same time pay no attention to the treatment adopted. He must be a foolish fellow not to know that

"there needs no ghost come from the grave to tell us" that the history of a patient's malady may be gained with much less trouble, and with much greater accuracy, from the patient himself, than by sitting down and servilely copying out the incorrect statement of cases, and farrago of puerile observations occasionally inserted by the House Surgeon, and this would not be the case were the Surgeon himself invariably to take the trouble of writing down the patient's case in his book at the patient's bedside. The "Pupil," of course, concludes that the knowledge not only of the history, but of the treatment of the disease, is to be gained from the patient.* There are but few young men who would not feel some repugnance in differing from the customs observed at their Hospital, as it is not usual for pupils at St. George's to borrow the Case Books from the Apothecary, I hope, for the credit of St. George's, that the "Pupil's" statement will be found correct. The "Pupil" may not be aware that in some schools of medicine separate rooms are allotted for the express purpose of accommodating students, at certain hours of the day, with a sight of the Case Books, where they are not left at the disposal of an apothecary, or any other person. In conclusion, I think it more than probable that the person signing himself "A Pupil of St. George's Hospital" is one of its Surgeons, and that he is particularly anxious his treatment of hospital cases should not be recorded in the pages of your valuable Journal, but for reasons, perhaps, which are best known to himself.

Tuesday morning,
July 12th, 1825.

* The Case Book contains, or ought to contain, I conceive, a faithful record of the *treatment* adopted in each particular case, and for a knowledge of which the pupil principally consults it.

To the Editor of THE LANCET.

SIR,—It has been justly observed by your Correspondent "Brutus," that the examiners of the College of Surgeons (or Surgeon's Hall) appear only desirous to provide for themselves and relations, regardless of the interests of the members. The recent regulations relative to Lecturers on Anatomy, and the appointment of Hospital Surgeons, rendering it almost impossible for any individual to become either the one or the other, without the aid of matrimony, or perhaps a favour conferred on the Senior Surgeon. But, as a member of that body, I do solemnly protest against the title of "College" being bestowed any longer on that establishment in Lincoln's-inn-fields, for the following reasons—not that several worthy persons receive pecuniary advantages, independent of which they would be liable to many privations; but because, like every other institution supported by voluntary contribution, much corruption has been introduced, inasmuch as many wealthy individuals receive the benefit of the institution.

I agree with your Correspondent "Brutus," that it is highly improper for its supporters to permit persons on the establishment to place their *busts* in any part of the College. I trust, therefore, that a meeting of the Subscribers will take place soon, in order to ascertain whether the persons on the establishment are all and each of them of sound mind, the Institution in question not being intended for insane persons; its professed objects being to support superannuated practitioners of surgery.

Mr. JOE BURNS expressed his indignation in strong terms some years ago, in consequence of having been refused admission; so great was the disappointment felt by that gentleman, that he either did, or intended to have counsel's opinion, whether or not he was a fit object. So says Mr. JOHN SHAW.

I shall conclude, by imploring you to use The Lancet freely for the recovery of such as are indisposed in the institution alluded to.

I am, Sir,
Yours, sincerely,
H. M.

HOSPITAL REPORTS.

GUY'S HOSPITAL.

Singular case of Spasmodic Affection of the Muscles of the Shoulder and Neck.

E. Etherford, aged 21, of light complexion and spare habit, was admitted into the Hospital under the care of Mr. Morgan. The patient stated that about six years since he was frequently employed in turning a mangle, and that from this exertion he felt so much weakness of the spine, that he could not keep his body in an erect position; he became gradually worse, and was placed under the care of Mr. Lloyd, who recommended him to adopt the recumbent posture, which he observed for nearly twelve months, but without obtaining any benefit from this plan of treatment. There is considerable lateral curvature of the spine, which has assumed the accustomed form in these cases of the italic *s*, and some of the spinous processes of the dorsal vertebræ appear twisted to one side, instead of projecting directly backward in the usual manner; this contortion, or "rotation of the spine," as it is termed by Dr. Dods, has produced deformity of the ribs on the right side, and the shoulder is considerably elevated. Upon accurately tracing the spinous processes of the vertebræ, no particular tenderness could be distinguished, except at the spines of the third and fourth cervical. About six months since he was attacked with his present complaint, and for which he came into the Hospital. It consists in a spasmodic action of part of the trapezius muscle, and of the levator scapulæ, by which "a shrugging" motion of the right shoulder is produced, and at the same time, by the spasmodic action of the platysma myoides, the corner of the mouth is drawn down, and the integuments on the side of the neck corrugated. These convulsive motions continue for some time; they are brought on by very slight causes, and are preceded by a tingling sensation, not, however, attended with pain. Two setons were put in about the middle cervical vertebra; these did not afford much relief, and a blister was afterwards applied, which has been of service. Due attention is paid to the state of the bowels, and no further treatment has been employed.

Case of retention of Urine.

The following case, although it admitted of speedy relief, is interesting in a practical point of view.

A boy, about four years of age, was brought to the Hospital on Saturday forenoon (July 2d) under the following circumstances:—The mother of the child stated, that he had not passed any urine for two days; upon examination, the bladder was found to be enormously distended, giving much pain to the patient when pressed upon. In the lower part of the perinæum, on the right side, was found considerable redness and swelling, which at first led to the belief of extravasation of urine; a catheter was with some little difficulty passed, and no stricture was found; nearly a quart of high coloured urine was drawn off; eight leeches were directed to be applied to the inflamed part in the perinæum, with warm fomentations, and a dose of castor oil was given immediately. On the following day a fluctuation was evident in the perinæum, and it was rightly considered that an abscess had formed, and that the pressure of matter in the urethra occasioned the retention of urine. Upon passing a lancet into the tumour, a considerable quantity of matter was discharged; poultices were ordered to be applied.

We forgot to remark, that the catheter had been passed this morning, and leeches had again been applied. The child is going on well, and is able to pass his urine freely.

Case of Traumatic Tetanus.

———— ————, aged 37, of dark complexion and spare habit, came into the Hospital on 9th of June, as a patient of Mr. B. Cooper's. He had fallen from a considerable height upon some iron railings, and one of the spikes had penetrated the inside of

the thigh through the fascia, and lacerated the muscles. The wound had nearly healed, but it was remarked, during its progress, that the patient had a great deal of nervous irritability. On Saturday, July 2d, he complained of a stiffness about the jaw, which was attributed to some pills of calomel and opium which he had taken, and no further notice was taken of this symptom, until Wednesday, 6th, when the jaws were found to be firmly closed; there was also considerable tension of the abdominal muscles, and the patient had some difficulty in deglutition. Pulse 96, small, and irregular. At the suggestion of Sir A. COOPER, he commenced with the hydrocyanic acid, at 3 p.m.; two drops to be taken every two hours.

7th. The hydrocyanic acid has been given during the night regularly; it had a decided effect upon the number of the pulse, reducing it to 65 beats. Pulse 84 and weak this morning; skin moist and cool. The jaws will admit but of very slight separation, and deglutition is still difficult. The tension of the abdominal muscles continues, but there is not much rigidity of the muscles of the neck. He passed a restless night, and was ordered to continue taking the acid.

8th. The patient is much worse this morning. Any attempt at deglutition throws the muscles of the throat into spasmodic action, which is exceedingly distressing. He had several paroxysms of spasm during the night, in which the extensor muscles of the head were strongly contracted, and there was also convulsive twitchings of the other muscles of the body. He took the hydrocyanic acid during yesterday, and in the evening commenced with *four drops every two hours*. He has not taken any since seven o'clock this morning. The pulse has risen in quickness since it was omitted; it is now 112, and feeble; skin moist and cool; respiration hurried, but tolerably free. At 9 o'clock the patient was visited by Mr. STOCKEN, who considered the symptoms urgent, and not at all relieved by the exhibition of the hydrocyanic acid; he prescribed the following medicines:

Capsicum, 4 grs.
Sulphate of Quinine, 3 grs.

to be made into a pill, and given every two hours, with the following draught:

Rectified Æther, 20 drops,
Syrup of Ginger, 1 drachm,
Carraway Water, 1 oz.

Of this medicine, the patient took only one dose, and he could not swallow the pills. At 2 p.m. the patient was visited by Dr. BRIGHT, and a consultation was held on the case, when it was agreed to adopt the stimulating plan.

The following medicines were prescribed by Dr. BRIGHT:

Musk, 20 grs.
Rectified Æther, 30 drops,
Subcarb. of Ammon. 6 grs.

to be made into a draught, and given every three hours; half an ounce of the oil of turpentine to be given in an enema directly; wine to be taken freely, and also porter. About four inches below the wound, there was an accumulation of matter, which was let out, and oil of turpentine afterwards applied to the part, and a poultice.

9th (noon). Pulse has more strength, 92; but it is variable. He has certainly improved under the use of the stimuli; he had a little sleep towards the morning. Bowels have been twice partially relieved. The jaws will not admit of further separation, and deglutition is still painful and difficult. Let him repeat the turpentine enema.

10th. The patient was much worse last night; he had several severe paroxysms, in which all the muscles of the body were thrown into convulsive action, and he was exceedingly restless; he continued to take the musk and ammonia, until eleven o'clock last night, when 80 *drops of laudanum* were given to him, and 60 drops repeated every three hours; this was continued during the night pretty regularly, and he is certainly better this morning; the muscles of the jaw are considerably relaxed, and he can now put two fingers into his mouth. He says that he felt much relief from the first dose of laudanum; a turpentine enema was administered last night, and was ordered to be repeated three times a day. He had two scanty evacuations yesterday. Pulse 114, and soft; skin moist. The abdominal muscles still

continue tense; there is not much rigidity of the muscles of the neck; he can swallow better, and has taken an egg mixed with wine, and other nourishment. Let him take 10 *grains of calomel* immediately, and continue to take the laudanum.

11th. The patient has had five hours' sleep during the night. Pulse of the same character as yesterday, quick and soft. His deglutition is improved, and he has taken freely of porter. The laudanum has been continued regularly to him, except when he was sleeping, and the turpentine enemata were given to him three times yesterday. He was directed to take 10 *grains of calomel* this morning, and a dose of the *black draught* every two hours, until the bowels were well acted upon. A common purgative enema was also given. There is still considerable rigidity of the muscular fibres; the abdominal muscles remain hard, but he has not had any paroxysms of spasm.

Let him continue to take the laudanum and porter *ad libitum*, with wine and arrow-root as before.

12th. We find him much better this morning; pulse 110, and soft; a strong purgative enema was administered last night, which produced three copious evacuations. He had four or five hours' sleep during the night, and has continued to take the laudanum regularly. He has had no convulsive paroxysms, his countenance is natural, he takes freely of bottled porter, and the turpentine enema was repeated this morning.

[*To be continued.*]

The only operation performed this week was for lithotomy, by Mr. B. COOPER. The operation was very skilfully performed. Mr. C. used the beaked knife, recommended and adopted by Mr. T. BLIZARD; the stone was very large and very long, upwards of an ounce; some little difficulty occurred in its extraction.

The accidents admitted this week are—a dislocation of the radius, with fractured ulna; a burn; a case of fractured clavicle and ribs; fracture of the femur; a case of severe concussion, with fracture of the radius and ulna; injury to the back, and a fractured fibula.

ST. THOMAS'S HOSPITAL.

Case of non-union of a Fracture Humerus.

F. R., aged 58, was admitted into the Hospital on January 7th, under the care of Mr. TYRRELL, with a simple fracture of the humerus, nearly about the insertion of the deltoid muscle. The accident occurred from the patient falling down stairs. There was not much contusion or extravasation, and the fracture was put up in the usual manner. After the common period when union might be supposed to have taken place, it was found, upon examination, that the bone had not united in the least; various plans have been adopted, but without success. The two portions of broken bone are at this time (July 1st) quite moveable, and their motion does not give the patient much pain; his general health is good, and pulse moderately firm at the opposite wrist, but on the affected side it is slow and feeble; he has had gout flying about and attacking different joints.

Mr. TYRRELL determined to-day on introducing a seton between the broken ends of the bone, in the manner first recommended by Dr. PHYSIC of New York, and since adopted in this country. The needle Mr. TYRRELL used upon this occasion was similar to a packing needle, but very large; taking care to avoid the vessels on the inside of the arm, the seton was passed from the under and outer part of the arm, between the ends of the bone. The patient suffered very little pain from the operation.

July 8th. There is considerable swelling of the arm, and it is evident that effusion has taken place between the ends of the bone; there has been so much uneasiness and pain, that the patient complains of not being able to rest; there is much discharge from the seton.

From present appearances it is probable that the desired effect will be produced; that so much inflammation will be excited as will bring about an union of the bone. This plan has been employed in this country with different degrees of success. We have seen one instance of a fractured humerus, in which it succeeded in producing a re-union of the bone.

No operations have been performed here this week.

The important accidents admitted are—a case of fracture of the femur, extending into the knee joint; a simple fracture of the tibia; lacerated wound of the scalp; injury to the breast, and a case of simple fracture of tibia and fibula.

ST. BARTHOLOMEW'S HOSPITAL.

On Sunday evening, June 26th, Mr. EARLE operated on a case of strangulated femoral hernia. The contents of the sac were a small portion of intestine, which was returned, and omentum; the latter appearing to the operator so completely adherent to the mouth of the sac he thought he could not separate it without danger to the patient. Soon after the operation, copious stools were produced, and the patient seemed to be going on well. On Tuesday, however, he was seized with vomiting, with pain, tenderness, and tension of the abdomen, indicating peritoneal inflammation; he was bled freely, and leeches and other means used to subdue the attack. Continuing to get worse, on Wednesday Mr. LAWRENCE was asked to see him, who said he would not survive another night, which opinion was verified by the event of his death during the evening.

Post Mortem Examination.

The intestines were found very much distended with flatus, and the omentum adhering to the mouth of the sac, tightly stretched in front of them, and dragging on the stomach.

The accidents admitted this week are—two patients with broken ribs, in one case attended with emphysema; fractured clavicle; bent fore-arm; two cases of fractured fibula and malleolus internus; retention of urine; two people bitten by dogs; girl who had swallowed a solution of sulphate of copper; woman cut in head and loins, with a number of minor accidents.

The operations this week have only been those of fistula in ano, and the removal of a small tumour from the anterior and external part of the leg, by Mr. LAWRENCE, who handed it round the theatre, observing it was of a homogeneous structure; he supposed it was a condensed cellular tissue; it was of a light brown colour. Mr. L. compared it with the renal capsules in appearance.

ST. GEORGE'S HOSPITAL.

H. D. aged 54, was admitted into this Hospital, Monday night, at 10 o'clock, June 11th, in a state of insensibility, from concussion of the Brain, occasioned by falling from a height of 20 feet. His superior extremities are a little injured, but his head seems to have received most injury. As there is no fracture or dislocation of the bones of the superior extremity, nothing was done to the patient till half an hour after his admission, when he was bled to ℥ xxx. by the House Surgeon, after which he seemed rather easier and more sensible until this morning at seven o'clock, when he seemed comatose and insensible, when he was again bled to ℥ xvi.; he still remains in a soporose state, with the pupils dilated, and every symptom of effusion in the substance of the brain, with no hopes of recovery. Cold applications constantly to the head.

The accidents admitted are—a case of compression, without fracture of the clavicle, and also a case of concussion.

[Want of space compels us to postpone the Middlesex Hospital Reports, with some observations on the abuses of the Foul Wards of that Hospital.]

NOTICE.

The Title and Index to the [*Seventh Volume* of THE LANCET is unavoidably delayed till Saturday next, the 23d inst.

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